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10/063,004

03/11/2002

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EXAMINER

BERNATZ, KEVIN M

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1773

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Application/Control Number: 10/063,004

Page 2

Art Unit: 1773



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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Paper No. 09042004

Application Number: 10/063,004

Filing Date: 03/11/2002

Appellant(s): FEIST ET AL.

Pamela J. Curbelo
For Appellant

EXAMINER'S ANSWER

MAILED
SEP 21 2004
GROUP 1700

This is in response to the appeal brief filed July 1, 2004.

(1) *Real Party in Interest*

A statement identifying the real party in interest is contained in the brief.

(2) *Related Appeals and Interferences*

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) *Status of Claims*

The statement of the status of the claims contained in the brief is correct.

(4) *Status of Amendments After Final*

The appellants' statement of the status of amendments after final rejection contained in the brief is correct.

(5) *Summary of Invention*

The summary of invention contained in the brief is correct.

(6) *Issues*

The appellants' statement of the issues in the brief is correct.

(7) Grouping of Claims

The appellants' statement in the brief that certain claims do not stand or fall together is not agreed with because appellants have not provided separate reasons or arguments as set forth in 37 CFR 1.192(c)(7) and (c)(8) to support their position. For the purposes of appeal, the Examiner notes that claims 1- 37, 40 and 41 are argued as one group and claims 38 and 39 are argued as a second, separate group.

(8) Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

5,130,356	FEUERHERD ET AL.	7-1992
5,972,461	SANDSTROM	10-1999
5,538,774	LANDIN ET AL.	7-1996

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1 – 15 and 18 - 41 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Feuerherd et al. (U.S. Patent No. 5,130,356) in view of Sandstrom (U.S. Patent No. 5,972,461).

Regarding claims 1, 22, 30, 40 and 41, Feuerherd et al. disclose a method for retrieving data from an optical disk, comprising rotating a storage media (*col. 18, line 40*

Art Unit: 1773

bridging col. 19, line 27) having a substrate and storage media with a thickness of about 0.8 mm to about 2.0 mm (*col. 25, lines 13 – 17*) comprising a single phase plastic resin portion (*col. 3, lines 8 – 26*) and a data layer (*col. 18, lines 40 – 47 and Examples*) disposed on a surface of the substrate, wherein the plastic resin portion comprises poly(arylene ether) and a styrene material selected from the group consisting of polystyrene, styrenic copolymers and reaction products and combinations comprising at least one of the foregoing styrene materials (*col. 13, line 67 bridging col. 14, line 7 and col. 14, line 66 bridging col. 15, line 9*); wherein information is retrieved from the data layer via an energy field (*col. 18, line 40 bridging col. 19, line 27*).

Feuerherd et al. fail to disclose wherein the energy field is directed at the storage medium such that the energy field is incident upon the data layer before it can be incident upon the substrate (i.e. a near-field or air-incident recording media).

However, Sandstrom teaches that it is known to form recording disks such that they are either substrate-incident (*col. 1, lines 17 – 23*) or air-incident (*col. 1, lines 24 – 36*), but that air-incident recording is preferred because it “has the potential to produce extremely small spot sizes using evanescent coupling and the resulting high numerical aperture, thereby providing increased spatial density and data storage capacity” (*col. 2, lines 12 – 16*).

It would therefore have been obvious to one of ordinary skill in the art at the time of the appellants’ invention to modify the device of Feuerherd et al. to utilize air-incident recording meeting appellants’ claimed method of use limitations as taught by Sandstrom since air-incident recording is preferred because it “has the potential to produce

extremely small spot sizes using evanescent coupling and the resulting high numerical aperture, thereby providing increased spatial density and data storage capacity”.

With regard to the transitional phrase “consisting essentially of” in claim 22, the examiner reminds applicants that “[t]he transitional phrase “consisting essentially of” limits the scope of a claim to the specified materials or steps “and those that do not materially affect the basic and novel characteristic(s)” of the claimed invention. *In re Herz*, 537 F.2d 549, 551-52, 190 USPQ 461, 463 (CCPA 1976) (emphasis in original)” (MPEP § 2111.03). The MPEP explicitly states “[f]or search and examination purposes, absent a clear indication in the specification of what the basic and novel characteristics actually are, “consisting essentially of” will be construed as equivalent to “comprising.”.

In the instant case, the Examiner deems that the basic and novel characteristics of the claimed invention are a substrate capable of being used for near-field incident recording at a high recording capacity (*specification, Paragraph 0007*).

The MPEP further states “[w]hen an applicant contends that additional steps or materials in the prior art are excluded by the recitation of “consisting essentially of,” applicant has the burden of showing that the introduction of additional steps or components would materially change the characteristics of applicant's invention”. In the court case cited in the MPEP, it should be noted the court's finding that “the court noted that appellants' specification indicated the claimed composition can contain any well-known additive such as a dispersant, and there was no evidence that the presence of a dispersant would materially affect the basic and novel characteristic of the claimed invention. ***The prior art composition had the same basic and novel characteristic***

(increased oxidation resistance) as well as additional enhanced detergent and dispersant characteristics [emphasis added] MPEP § 2111.03.

In the instant case, the Examiner notes that appellants' disclosed and claimed invention (e.g. claims 10 – 18) provides explicit evidence that additional elements included in the substrate composition do not effect the capability of the substrate for use in near-field air-incident recording at a high recording capacity, i.e. the additional fillers, reinforcements, copolymers, etc. are deemed to not effect the basic and novel characteristics of the claimed invention and are therefore not excluded by the transition phrase "consisting essentially of".

Regarding claim 2, Feuerherd et al. disclose providing surface features for servo patterning (*col. 17, lines 3 - 35*).

Regarding claim 3, Feuerherd et al. disclose weight average MW's meeting applicants' claimed range limitations (*col. 14, lines 17 – 30 and col. 15, lines 6 - 14*).

Regarding claims 4 – 6, 23 – 25, 33 and 34, Feuerherd et al. disclose that the poly(arylene ether) is preferably formed of a weight average molecular weight of 35,000 to 45,000 which is deemed to implicitly teach that 0% of the poly(arylene ether) should preferably be under 15,000 molecular weight (*col. 14, lines 23 - 27*).

Regarding claims 7 - 9, Feuerherd et al. disclose relative amounts of poly(arylene ether) and styrene material meeting applicants' relative ratio amounts (*col. 14, lines 8 - 16*).

Regarding claims 10 and 11, Feuerherd et al. disclose styrene copolymers meeting appellants' claimed composition limitations (*col. 14, line 66 bridging col. 15, line*

Art Unit: 1773

5 and col. 16, lines 3 - 12). The limitation "prepared by bulk, suspension or emulsion polymerization" is a process limitation and is not further limiting in so far as the structure of the product is concerned since the final product will be substantially identical in composition (i.e. still a styrene copolymer composition). In the instant case, Feuerherd et al. explicitly teach that the styrene materials can be prepared by "known free radical polymerization" or "the conventional known anionic polymerization methods" and does not indicate that using any of the known methods results in a styrene material which is materially different than a styrene material prepared by any other known method.

Regarding claims 12 – 15, 26 – 28, 35 and 36, Feuerherd et al. disclose adding amount of co-monomer meeting applicants' claimed material and weight percent limitations to styrene copolymers (*col. 15, lines 39 bridging col. 16, line 2 and col. 25, lines 35 - 39*).

Regarding claim 18, Feuerherd et al. disclose additives meeting applicants' claimed material limitations (*col. 16, lines 17 - 24*).

Regarding claims 19 and 20, Feuerherd et al. disclose mixtures of styrene and styrene copolymers meeting applicants' claimed weight percent ranges (*col. 15, lines 6 – 14; col. 16, lines 28 – 45; and col. 25, lines 33 - 39*).

Regarding claims 21, 29 and 37, Feuerherd et al. disclose poly(arylene ether) components meeting applicants' claimed intrinsic viscosity values (*col. 11, lines 16 - 18*).

Regarding claims 31 and 32, Sandstrom teach that for air-incident recording it is known to utilize a reflecting layer between the substrate (*Figure 1, layer 18*) and the

Art Unit: 1773

data layer, which prevents the energy field from being incident on the substrate (claim 32) and reflects part of the energy field back from the data layer (claim 31). Feuerherd et al. further teaches the use of a reflecting layer improves the reflection of the laser beam in optical and magneto-optical disks (*Feuerherd et al.* – col. 18, lines 24 – 28).

Regarding claims 38 and 39, Sandstrom teaches the importance of producing flat, dimensionally stable substrates with the warp, tilt and axial deflection minimized in order to allow the air gap between the flying head and the disk to remain substantially constant, thereby increase recording density, avoid head crashes and improve the read/write capabilities of the disk (*col. 2, line 13 bridging col. 3, line 18; col. 4, lines 3 – 25; and col. 6, lines 49 – 61*). The Examiner deems that it would have been obvious to one having ordinary skill in the art to have minimized the results effective variable such as the radial tilt through routine experimentation, especially given the teaching in Sandstrom regarding the desire to minimize the tilt and maximize the flatness of the disk to achieve high recording density, reduced head crashes and improved read/write capabilities. *In re Boesch*, 205 USPQ 215 (CCPA 1980); *In re Geisler*, 116 F. 3d 1465, 43 USPQ2d 1362, 1365 (Fed. Cir. 1997); *In re Aller*, 220 F.2d, 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Claims 16 and 17 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Feuerherd et al. in view of Sandstrom as applied above, and further in view of Landin et al. (U.S. Patent No. 5,538,774).

Feuerherd et al. and Sandstrom are relied upon as described above.

Regarding claims 16 and 17, none of the above disclose adding fillers meeting applicants' material and/or shape limitations.

However, Landin et al. teach that it is known to add fibrous and/or particulate filler meeting applicants' claimed material and shape limitations in order to control the viscoelastic damping and strain energy ratio of the substrate (*col. 7, line 22 bridging col. 9, line 15*).

It would therefore have been obvious to one of ordinary skill in the art at the time of the appellants' invention to modify the device of Feuerherd et al. in view of Sandstrom to use filler meeting applicants' claimed composition and size limitations as taught by Landin et al. in order to control the viscoelastic damping and strain energy ratio of the substrate.

(11) Response to Argument

Appellants argue that the various types of media are not interchangeable, that "Sandstrom teaches that all disks are **not** created equal" (*page 7 of brief- emphasis in original*), and that "an artisan would not have been motivated to use the teachings of Feuerherd [sic] et al. in the preparation of a media as taught and claimed in the present application" (*page 8 of brief*). Specifically, appellants argue that the references fail to teach using the substrate material disclosed in Feuerherd et al. with the air-incident recording method in the Sandstrom reference (*pages 8 – 9 of brief*). The Examiner respectfully disagrees.

First, appellants are reminded that “the test for obviousness is not whether ... the claimed invention is expressly suggested in any one or all of the references, rather the test is what the combined teachings would have suggested to those of ordinary skill in the art.” *Ex parte Martin* 215 USPQ 543, 544 (PO BdPatApp 1981). In the instant case, appellants appear to be arguing, at least in part, against the *individual* references not teaching the entire claimed embodiment and not against the recited combination.

With regard to appellants’ arguments against the *combination*, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the Examiner notes that both Sandstrom and Feuerherd et al. are directed to the analogous field of optical disks (*e.g. Titles*). The Examiner further notes that Sandstrom provides explicit motivation as to why one of ordinary skill in the art would prefer air-incident recording over substrate-incident recording, as well as disclosing the *properties* of the substrates which are required in order to produce an air-incident media (*e.g. low tilt, axial displacement, high dimensional stability, etc*). Finally, the Examiner notes that Sandstrom is open to virtually any known substrate material to be used, provided the artisan controls the physical properties according to the teachings that Sandstrom espouses (*col. 7, lines 1 – 14: “substrate 12 can be formed from a variety of materials including thermosets,*

Art Unit: 1773

thermoplastics, metal or glass. The selected materials can be transparent or opaque. Also, such materials could be selected in part on the basis of the applicable elastic modulus of the material for enhanced rigidity relative to more typical substrate materials for optical disks. For optical recording, however, it is typically desirable to form physical format on substrate 12 to facilitate optical tracking. Therefore, it may be most desirable to form substrate 12 from a material that can be readily replicated with a physical format in a mold").

The Examiner notes that not only does Feuerherd et al. disclose substrate materials for optical disks like Sandstrom, Feuerherd et al. also disclose that the taught materials produce substrates with high dimensional stability and "particularly outstanding shaped relief structure which corresponds exactly to the original on the die. The compact disk therefore have a particularly low bit error rate and a particularly high signal-to-noise ratio. They therefore have extremely high playback quality" (col. 18, lines 21 – 39). As such, the Examiner deems there is clear and sufficient evidence that one of ordinary skill in the art would have sought to combine the teachings of Sandstrom with Feuerherd et al. since both are in the same field of endeavor and the substrate material taught by Feuerherd et al. is clearly within the scope of substrate materials required by Sandstrom for achieving the disclosed benefits of air-incident recording.

Appellants further argue that the transitional phrase "consisting essentially of" as recited in claim 22 should be directed to "whether the element would affect the plastic

resin portion's ability to be in a single phase" (*pages 10 –11 of brief*). The Examiner respectfully disagrees.

The Examiner notes that the MPEP is clear that the phrase "consisting essentially of" limits the scope of a claim to the specified materials or steps "and those that do not materially affect the basic and novel characteristic(s)" of the claimed invention. *In re Herz*, 537 F.2d 549, 551-52, 190 USPQ 461, 463 (CCPA 1976) (emphasis in original)" (MPEP § 2111.03). Including the further statement "[w]hen an applicant contends that additional steps or materials in the prior art are excluded by the recitation of "consisting essentially of," applicant has the burden of showing that the introduction of additional steps or components would materially change the ***characteristics of applicant's invention***" (emphasis added).

The Examiner has already stated on the record what is deemed applicants "basic and novel characteristics" of appellants' invention and the inclusion (*see rejection of record above*) and the inclusion of additional elements does not appear to affect those characteristics. Appellants have provided no convincing arguments that the basic and novel characteristics stated by the Examiner are in error.

Finally, with regard to claims 38 and 39, appellants argue that tilt is not a results (cause) effective variable and that "Sandstrom does not consider, and does not teach, that flatness is a "result effective variable"; Sandstrom considers it a novel feature of their disk" (*pages 9, 11 and 12 of brief*). The Examiner respectfully disagrees.

Regardless of whether Sandstrom would be the first to 'discover' flatness or tilt, the Examiner notes that Sandstrom discloses (1) that the flatness or tilt is desired to be minimized, (2) that the flatness or tilt of the medium is a function of at least one property (e.g. *Figures 3 and 4*); and (3) that the flatness or tilt of the medium is controllable based on controlling the physical properties of the medium (e.g. *substrate thickness as shown in Figures 3 and 4 or "stiffness", which Sandstrom relates to the thickness in col. 2, lines 20 – 32*).

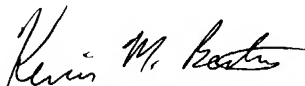
Finally, the Examiner finds the argument that one of ordinary skill in the recording media art would not desire a flat disk incredulous. The Examiner cannot imagine a technician in the recording art, which is driving to higher and higher recording densities based on air-incident recording and extremely close head-disk spacing, etc., producing a disk which, when sitting at rest is shaped like a Pringles[™] potato chip. The *motivation* to produce a flat disk is clearly within the knowledge of one of ordinary skill, though the *degree* of flatness is something which the Examiner acknowledges may, or may not, be obtainable. However, based on the teachings of Sandstrom, the claimed tilt is clearly within the capabilities of one of ordinary skill, since the Examiner notes that a tilt of 1° (claim 38) is ~17 mrad and a tilt of 0.3° (claim 39) is ~5 mrad. Sandstrom discloses tilts as low as ~1 mrad (0.06°) as being obtainable by an artisan of ordinary skill at the time of appellants' invention.


For the above reasons, it is believed that the rejections should be sustained.

Application/Control Number: 10/063,004
Art Unit: 1773

Page 15

Respectfully submitted,


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September 8, 2004

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